YEAR AT A GLANCE: *MATH 8 (updated Dec 2022)*

	UNIT 1	**UNIT 2**	**UNIT 3**
Title	**Algebra of One Variable**	**Tools of Geometry**	**Transformations**
Unit Length *(weeks taught)*	**3**	**3**	**4**
Enduring Understanding (The big ideas, the "why" we include these ideas	Equations with variables can be used to model real life situations. There can be infinite, one or no solutions to an equation in one variable. Inverse operations can be used to create simplified equivalent equations.	Intersecting lines create angle pairs with special relations. Algebra and the relations of angles can be used to find unknown measures. The properties of the angles in a triangle can be used to find unknown measures. Linear relations will have a constant rate of change.	Recognise if a transformation is a rigid motion. Rigid motions result in congruent shapes. Apply transformational notation for line reflections, rotations, translations, and dilations. Identify which transformation or combination of transformations have occurred.
Essential Questions (What do we want students to think about)	How can we use relationships to find the value of variables?	How can algebraic concepts be applied to geometry?	How can we best show or describe the change in position of a figure?

	UNIT 4	**UNIT 5**	**UNIT 6**
Title	**Similarity and Dilations**	**Equations of Lines**	**Functions**
Unit Length *(weeks taught)*	**3**	**3**	**3**
Enduring Understanding (The big ideas, the "why" we include these ideas	How does the dilation factor relate to the ratios of corresponding sides. Use similarity to answer questions involving indirect measurement. Dilations result in similar shapes. How does the dilation factor relate to the ratios of corresponding sides. Use similarity to answer questions involving indirect measurement.	How is the initial value represented for a linear relation. Some linear relations are proportional. There are different forms for representing linear relations.	A function is a relation that follows the property that each input has only one output. Tables and graphs can be used to identify functions. Functions can be linear or non-linear.
Essential Questions (What do we want students to think about)	How can you determine congruence and similarity?	Why are graphs helpful?	How can we model relationships between quantities?

	UNIT 7	UNIT 8	UNIT 9	Unit 10	UNIT 11
Title	**Exponents and Roots**	**Pythagorean theorem**	**Volume and Surface Area of Solids**	**Scientific Notation**	**Systems**
Unit Length *(weeks taught)*	**3**	**2**	**2**	**2**	**2**
Enduring Understanding (The big ideas, the "why" we include these ideas	There are different categories of numbers. The laws of exponents can simplify operations when there is a common base.	All right triangles have consistent proportional relationships between the sides	The formulas for some objects are related (ie. circles-cylinders, cones) There is a difference between using the Pi key on a calculator and a rounded value. There is a distinction between units, units^2 and units^3	There are different categories of numbers. The laws of exponents can simplify operations when there is a common base. Scientific notation can be useful when dealing with very large and small numbers.	Systems of equations can be solved graphically or algebraically.
Essential Questions (What do we want students to think about)	How can we express repeated multiplication?	How can properties of right triangles be used for indirect measurement.	Why is learning mathematics important?	Why is it helpful to write numbers in different ways?.	How can we solve equations with multiple variables?